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ABSTRACT

Critical thinking is a cultivation of that strand of traditional education which stresses the cultivation of wisdom and its application to both practice and life. To strengthen critical thinking in schools and colleges, it is necessary to know its defining features, its characteristic outcomes, and its underlying conditions. The outcomes of critical thinking are judgments; and the nature of judgment is such that critical thinking may be defined as skillful, responsible thinking that facilitates good judgment because (1) it relies upon criteria; (2) it is self-correcting, and (3) it is sensitive to context. The very meaning of "criterion" is "a rule or principle utilized in the making of judgments." Judgment, in turn, is a skill; therefore critical thinking is skillful thinking, and skills can only be defined through criteria by which performance can be evaluated. So critical thinking is thinking that both employs criteria and can be assessed by appeal to criteria. Important criteria are reliability, strength, relevance, coherence, and consistency. Critical thinking is self-corrective, promoting a community of inquiry in the classroom by requiring students to discover weaknesses in their own thinking and to rectify faults in their procedures. Finally, thinking that is sensitive to context involves recognition of: exceptional or irregular circumstances and conditions; special limitations, contingencies, or constraints; overall configurations; the possibility that evidence is atypical; and the possibility that some meanings do not translate from one context or domain to another. Exemplary instances of critical thinking can be found in the best practice of law and medicine. The relevance of critical thinking to the enhancement of K-12 and college education is related to the shift from learning to thinking as the focus of education and to the goal of helping students develop the reasoning skills that will enable them to exercise good judgment. (IAH)

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Critical Thinking: What Can It Be?

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The Institute for Critical Thinking at Montclair State College is designed to support and enrich faculty development efforts toward critical thinking as an educational goal. Guided by a National Advisory Board and a College Advisory Council, its primary purpose is to serve as a catalyst in the development of educational excellence across the curriculum at the College. A collaborative, multi-disciplinary approach is in process, with attention to the study of both the theoretical aspects of critical thinking across the disciplines and their implications for teaching and learning at the college level. Leadership roles have also been assumed in helping other colleges and schools to incorporate critical thinking into their curricula.

As part of this effort, the Institute for Critical Thinking publishes a newsletter, *Critical Thinking: Inquiry Across the Disciplines*, on a monthly basis during the academic year. The newsletter publishes information about the activities of the Institute, as well as brief analyses of various critical thinking issues. In addition, the publication of several series of resource documents are in process. These publications will make available, to interested faculty and others at Montclair and elsewhere, working papers related to critical thinking as an educational goal. These publications will enable those persons interested in critical thinking to have access to more extensive discussions of the kinds of issues that can only be presented in summary form in the newsletter. These discussions will typically be regarded as works-in-progress--articles written as tentative arguments inviting response from others, articles awaiting the long publication delay in journals, etc. The proceedings of our conferences will also be presented in the form of resource publications, as will articles based on our series of lectures, inquiry panels, and faculty seminars and forums.

In this first series of resource publications, we have included working papers by members and guests of our Institute Fellows "Round Table." Most of these working papers have been presented for discussion at one or more of the Fellows' seminar meetings, and have influenced our thinking about the nature of critical thinking as an educational goal.

The Institute welcomes suggestions for our resource publication series, as well as for our other activities. Correspondence may be addressed to us at

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CRITICAL THINKING: WHAT CAN IT BE?

Matthew Lipman

The two principal aims of education have been the transmission of knowledge and the cultivation of wisdom. Highly stable, tradition-bound societies have emphasized the first of these aims. *Knowledge*, conceived in such societies as a stockpile of truths, is transmitted from the older to the younger generations. It is thought of as a body of eternal verities, perennially applicable to an unchanging world.

In times of change, however, traditional knowledge can turn out to be obsolete. In such periods, people are inclined to emphasize intellectual flexibility and resourcefulness rather than knowledge. Thus the Stoics cultivated *wisdom* in preparation for good times and bad times alike.

Our contemporary conception of education as inquiry combines both of these aims. Its emphasis is on the process as well as on the product--on thinking as well as on knowledge, on inquiry as well as on truth. It grants each discipline a slowly changing, ever-accumulating fund of knowledge representing the precipitated experience in that discipline. Nevertheless, students are nowadays expected to think critically, and not merely to learn what is already known.

Critical thinking, then, is a cultivation of that strand of traditional education which stressed the cultivation of wisdom and its application to practice and to life. But what *is* critical thinking?

If we are to foster and strengthen critical thinking in the schools and colleges, we need a clear conception of what it is and of what it can be. We need to know its defining features, its characteristic outcomes, and the underlying conditions that make it possible. Let us begin with the outcomes.

1. *The outcomes of critical thinking are judgments*

If we consult current definitions of critical thinking, we cannot help being struck by the fact that the authors stress the *outcomes* of such thinking, but generally fail to note its essential characteristics. What is more, the outcomes that are specified tend to be limited to *solutions* and *decisions*. Thus one writer defines critical thinking as "the mental processes, strategies and representations people use to solve problems, make decisions and learn new concepts" (Sternberg, 1985). Another conceives of critical thinking as "reasonable reflective thinking that is focused on deciding what to believe and do" (Ennis, 1987).

These definitions provide us with insufficient enlightenment because the outcomes (solutions, decisions, concept-acquisition) are too narrow and

the defining characteristics (reasonable, reflective) they suggest are too vague. For example, if critical thinking is whatever thinking it is that results in decisions, then deciding what doctor to go to by picking a name at random out of a phone book would have to count as critical thinking. *We must broaden the outcomes, identify the defining characteristics, and then show the connection between them.*

It was mentioned earlier that the present concern for critical thinking is reminiscent of the ancient concern for wisdom. It would be worthwhile to return briefly to that point. What is wisdom conceived to be? Consulting a few dictionaries will yield such phrases as "intelligent judgment" or "excellent judgment" or "judgment tempered by experience." We can hardly help noticing how the term *judgment* keeps cropping up. For a penetrating discussion of judgment, see Buchler, 1951).

But what is judgment? Here again, recourse to dictionaries suggests that judgment is "the forming of opinions, estimates or conclusions." It therefore includes such things as solving problems, making decisions, and learning new concepts, but it is more inclusive and more general.

The definitions of wisdom suggest that those who are wise exercise *good* judgment. What is the difference between mere judgment and good judgment? This distinction is not an unfamiliar one: we commonly distinguish between mere singing and singing well, between mere living and living well. Nor is it unusual to distinguish between mere thinking and thinking well.

The line of inquiry we have been following is one that shows wisdom to be the characteristic outcome of good judgment and good judgment to be the characteristic of critical thinking. Perhaps the point we are now at, where we want to know how ordinary judgment and good judgment are different, is a good place to pause and consider some illustrations.

Wherever knowledge and experience are not merely possessed but *applied to practice*, we are likely to see clear instances of judgment. Architects, lawyers, doctors are professionals whose work constantly involves the making of judgments. The same is true of composers, painters and poets. It is again true of any of us when we are in moral situations: we have to make moral judgments. It is true of teachers and farmers and theoretical physicists as well: all of them have to make judgments as part of the practice of their occupations and their lives. There are practical, productive and theoretical judgments, as Aristotle would have put it. Insofar as we make such judgments well, we can be said to behave wisely.

It should be kept in mind that good professionals make good judgments about their own practice as well as about the subject-matter of their practice. A good doctor not only makes good diagnoses of patients and prescribes well for them, but also makes good judgments about medicine and his or her ability to practice it. Good judgment takes everything into

account, including itself.

A judgment, then, is a determination--of thinking, of speech, or action or of creation. A gesture, such as the wave of a hand, can be a judgment; a metaphor, like "John is a worm," is a judgment; an equation, like E=mc2, is a judgment. They are judgments because, in part, they have been reached in certain ways, relying on certain instruments or procedures in the process. They are likely to be good judgments if they are the products of *skillfully* performed acts guided by or facilitated by appropriate instruments and procedures. If we now look at the process of critical thinking and identify its essential characteristics, we will be in a better position to understand its relationship to judgment. I will argue that critical thinking is *skillful, responsible thinking that facilitates good judgment because it (a) relies upon criteria, (b) is self-correcting, and (c) is sensitive to context. Useful discussions of the nature of criteria are to be found in Slote, (1966) and Scriven (1959).*

2. *Critical thinking relies upon criteria*

We suspect an association between the terms "critical and "criteria" because they resemble each other and have a common ancestry. Also, we are all familiar with book and music and film critics, and it is not uncommon to assume that those among them who are excellent are those who employ reliable criteria.

We are also aware of a relationship between criteria and judgments, for the very meaning of "criterion" is "a rule or principle utilized in the making of judgments." It seems reasonable to conclude, therefore, that there is some sort of logical connection between "critical thinking" and "criteria" and "judgment." The connection, of course, is to be found in the fact that judgment is a skill, that critical thinking is skillful thinking, and skills cannot be defined without criteria by means of which allegedly skillful performances can be evaluated. So critical thinking is thinking that both employs criteria and that can be assessed by appeal to criteria.

Furthermore, it might be profitable to consider what "uncritical" thinking might be. Surely it suggests thinking that is flabby, amorphous, arbitrary, haphazard and unstructured. The fact that critical thinking can rely upon criteria suggests that it is well-founded, structured and reinforced thinking. It seems to be defendable and convincing. How does this happen?

Whenever we make a claim or utter an opinion, we are very vulnerable unless we can somehow back it up. We should therefore ask ourselves questions such as these: "When our opinions come under fire, to what do we appeal?" "When our claims are contested, what do we invoke?" "When our assertions are not convincing, what do we cite to strengthen them?" In attempting to answer questions such as these, we are led to see that claims and opinions must be supported by reasons. What is the connection between reasons and criteria?

Criteria *are* reasons: they are one kind of reason, but it is a particularly *reliable* kind. When we have to sort things out descriptively or evaluationally--and these are two very important tasks--we have to use the most reliavle reasons we can find, and these are classificatory and evaluational criteria. Criteria may or may not have a high level of public acceptance, but they have a high level of acceptance an respect in the community of inquiry. The competent use of such respected criteria is a way of establishing the objectivity of our prescriptive, descriptive and evaluative judgments. Thus architects will judge a building by employing such criteria as *utility*, *safety*, and *beauty*; magistrates make judgments with the aid of such criteria as *legality* and *illegality*; and presumably, critical thinkers rely upon such time-tested criteria as *validity*, *evidential warrant*, and *consistency*. Any area of practice--like the examples just given of architectural practice, judicial practice and cognitive practice--should be able to cite the criteria by which that practice is guided.

The intellectual domiciles we inhabit are often of flimsy construction; we can strengthen them by learning to reason more logically. But this will help little if the grounds or foundations upon which they rest are soft and spongy. We need to rest our claims and opinions, as well as the rest of our thinking, upon footings as firm as bedrock. Relying upon sound criteria is one way of putting our thinking upon a more solid foundation.

Here, then, is a brief list of the sorts of things we invoke or appeal to, and that therefore represent specific kinds of criteria:

--standards;
--laws, by-laws, rules, regulations, charters, canons, ordinances, guidelines and directions;
--precepts, requirements, specifications, stipulations, limits;
--conventions, norms, regularities, uniformities, covering generalizations;
--principles, assumptions, presuppositions, definitions;
--ideals, purposes, goals, aims, objectives;
--tests, credentials, experimental findings;
--methods, procedures, policies.

All of these are instruments that can be employed in the making of judgments. They are part of the apparatus of rationality. Isolated in categories in a taxonomy, as they are here, they appear inert and sterile. But when they are at work in the process of inquiry, they can function dynamically--and critically.

It has already been noted that by means of logic we can validly extend our thinking; by means of reasons such as criteria we can justify and defend it. The improvement of student thinking--from ordinary thinking to good thinking--depends heavily upon the ability of such students to identify and cite good reasons for the opinions they utter. Students can be brought to

realize that, for a reason to be called good, it must be *relevant* to the opinion in question and *stronger* (in the sense of being more readily accepted, or assumed to be the case) than the opinion in question.

For example, when assigning grades to students, teachers must be prepared to justify such grades by citing the reasons, i.e. the criteria, on the basis of which the judgments at issue were made. It will hardly do for the teacher to claim that the judgment was arrived ar "intuitively," or to say that criteria were unnecessary and irrelevant. Critical thinking is *cognitive accountability*. (I see no inconsistency between urging "cognitive accountability," such as feeling an obligation to supply reasons for stated opinions, and urging the development of intellectual autonomy among students. If providing students with cognitive skills is a form of empowerment, such increased powers entail increased responsibilities, especially to and for oneself. There are times when we cannot let other people do our thinking for us, and we must think for ourselves. And we must learn to think for ourselves by thinking for ourselves: no one can instruct us in how to do it, although they can put us in a community of inquiry where it becomes a relatively easy thing to do. The point is that students must be encouraged to become reasonable for their own good, as a step toward their own autonomy, and not just for *our* good--the good of society. When we openly state the criteria we employ, we encourage students to do likewise. By providing models of *intellectual responsibility*, we invite them to assume responsibility for their own thinking and, in a larger sense, for their own education.

Since the school or the college is a locus of inquiry, procedures employed therein must be defensible, as when specifications for hiring or promotion are provided to applicants. But this does not mean that all aspects of our lives are always and necessarily occasions for inquiry. There are things we prize that we may not care to appraise; there are people we esteem that we may not want to estimate. Under these circumstances, the call for criteria and standards may well be ignored, where the harm done to intimacy and privacy outweighs the benefits to be derived from such evaluations. In any event, if there are matters about which one does not care to reflect upon publicly, the drawing of such a boundary line should be the result of one's own choosing.

When we have to select among criteria, we must of course rely on other criteria to do so. Some criteria serve this purpose better than others, and can therefore be said to operate as *meta-criteria*. For example, when it was earlier pointed out that criteria are especially reliable reasons, and that good reasons were those that revealed strength and relevance, this was another way of saying that *reliability*, *strength*, and *relevance* are important meta-criteria. Others that might be cited are *coherence* and *consistency*.

Some criteria are of a very high level of generality, and are often presupposed, either explicitly or implicitly, whenever critical thinking takes place. Thus the notion of knowledge presupposes the criterion of *truth*, and

so wherever scientific knowledge is claimed, the concomitant claim being made is that it is true. In this sense, philosophical domains such as epistemology, ethics and aesthetics do not dictate the criteria relevant to them, but rather, it is the other way 'round: the criteria define the domains. Epistemology consists of judgments to which truth and falsity are relevant; ethics comprises judgments to which right and wrong are relevant; and aesthetics contains judgments to which beautiful and not-beautiful are relevant. *Truth, right, wrong, just, good, beautiful*--all of these are of such vast scope that we should probably consider them *meta-criteria*. And they in turn are instances of the great galactic criterion of *meaning*.

One of the primary functions of criteria is to provide a basis for comparisons. When a comparison is made and no basis or criterion is given (as would be the case in, say, "Tokyo is better than New York"), confusion results. On the other hand, if several competing criteria might be applicable (as when someone says, "Tokyo is larger than New York" and we don't know whether he means larger in size or larger in population), the situation can be equally confusing. Just as opinions should generally be backed up with reasons, comparisons should generally be accompanied by criteria.

Sometimes criteria are introduced informally and extemporaneously, as when someone remarks that Tuesday's weather was good compared with Monday's, while Wednesday's weather was bad compared with Monday's. In this case, Monday's weather is being utilized as an informal criterion. The same is the case if someone says, "Compared to a dog, an elephant is large, but compared to a dog, a mouse is small": this case also involves the informal, impromptu use of criteria. Even figurative language can be understood as involving the use of informal criteria. Thus such open and closed similes as "The school was like an army camp" or "The school was as regimented as an army camp" use the regimentation of an army camp as an informal criterion against which to measure the orderliness of the school.

On the other hand, when criteria are considered by an authority or by general consent to be a basis of comparison, we might speak of them as "formal" criteria. When we compare the quantities of liquid in two tanks in terms of gallons, we are employing the unit of the gallon on the say-so of the Bureau of Weights and Measures. The gallon measure at the Bureau is the institutionalized paradigm case to which our gallon measure is comparable.

So things can be compared by means of more or less formal criteria. But there is also the distinction between comparing things with one another and comparing them with an ideal standard. Plato addresses this distinction in *The Statesman;* in this Dialogue the Stranger remarks to Young Socrates, "We must posit two types and two standards of greatness and smallness...The standard of relative comparison will remain, but we must acknowledge a second standard, which is a standard of comparison with the due measure" (Hamilton and Cairns, 1961). For example, in grading test papers, we may compare a student's performance with the performances of other students in the class (using "the curve" as a criterion), or we may compare it with the

standard of an error-free performance. Or, in baseball, we may compare pitchers' averages with one another, or we may compare their performances with what is entailed in pitching "a perfect game"--i.e., a "no-hit" performance. For a contemporary interchange regarding comparison of things with one another vs. comparison of things with an ideal, see Ryle (1966) and Hamlyn (1970).

Standards and criteria are terms that are often used interchangeably in ordinary discourse. It would appear, however, that standards represent a vast sub-class of criteria. It is vast because the concept of *standard* can be understood in many different ways. There is the interpretation cited in the preceding paragraph, where we are talking about an ideal standard or standard of perfection. There are, in contrast, standards as *minimal* levels of performance, as in the oft-heard cry, "We must not lower our standards!" There is a sense in which standards are conventions of conduct: "When in Rome, do as the Romans do" provides a conventional standard for our moral guidance. There is also the sense in which standards are the units of measurement defined authoritatively be a Bureau of Standards.

There is, of course, a certain arbitrariness about even the most reliable standards, such as units of measurement, in that we are free to define them as we like. We could, if we liked, define a yard as containing less inches than it presently does. But the fact is that, once defined, we prefer such units to be unchanging: they are so much more reliable that way. And when concepts are vague, arbitrariness may be unavoidable. Thus the concept of maturity is vague: it lacks clear cut-off points. But once the voting age is set at 21, a precise decision procedure is available for deciding who is and who is not elegible for voting.

Criteria--and particularly standards among them--are among the most valuable instruments of rational procedure. Teaching students to use them is an essential aspect of the teaching of critical thinking.

3. Critical thinking is self-corrective thinking.

The most characteristic feature of inquiry, according to Charles Peirce, is that it aims to discover its own weaknesses and rectify what is at fault in its own procedures. Inquiry, then, is self-correcting. See Peirce (1935) for a discussion of the connection between self-correcting inquiry, self-criticism, and self-control.

Much of our thinking moves along uncritically. Our thought unrolls impressionistically, from association to association, with little concern for either truth or validity, and with even less concern for the possibility that it might be erroneous.

Among the many things we may reflect upon is our own thinking. We can think about our own thinking, but we can do so in a way that is still quite

uncritical. And so, granted that "meta-cognition" is thinking about thinking, it need not be equivalent to critical thinking.

One of the most important advantages of converting the classroom into a community of inquiry (in addition to the undoubted improvement of moral climate it brings about) is that the members of the community begin looking for and correcting each other's methods and procedures. Consequently, insofar as each participant is able to internalize the methodology of the community as a whole, each participant is able to become self-correcting in his or her own thinking.

4. Critical thinking displays sensitivity to context.

Just as critical thinking is sensitive to uniformities and regularities that are generic and intercontextual, it is sensitive to characteristics of situations that are holistic or context-specific. Thinking that is sensitive to context involves recognition of

a. *exceptional or irregular circumstances and conditions*, with the result that thinking which might normally be prohibited is considered permissible. For example, a line of investigation that ordinarily would be considered *ad hominem* and therefore fallacious might be found permissible in a trial.

b. *special limitations, contingencies or constraints*. Under such circumstances, normally acceptable reasoning might find itself prohibited. An example might be the rejection of certain Euclidean theorems, such as that parallel lines never meet, in non-Euclidean geometrics.

c. *overall configurations*. Thus a remark taken out of context may seem to be flagrantly in error, but in the light of the discourse taken as a whole appears valid and proper, or vice versa.

d. *the possibility that evidence is atypical*. An example would be a case of overgeneralizing about our national voter preferences based on a tiny regional sample of ethnically and occupationally homogeneous individuals.

e. *the possibility that some meanings do not translate from one context or domain to another*. There are terms and expressions for which there are no precise equivalents in other languages, and whose meanings are therefore wholly context-specific.

With regard to *thinking with criteria* and *sensitivity to context*, a suitable illustration might be an exercise or assignment that would involve the application of a particular criterion to a set of fictional situations.

Suppose the criterion in question is *fairness* (which is itself a way of construing the still broader criterion of justice). One form which fairness assumes is *taking turns*. Here is an exercise taken from Wondering at the World (*Lipman and Sharp, 1986*) , the instructional manual accompanying Kio and Gus (Lipman, 1982), a Philosophy for Children program for children of 9 to 10 years of age:

Taking turns

There are times when people engage in sharing. For example, they go to a movie and share the pleasure of looking at the movie together. Or they can share a piece of cake by each taking half.

In other cases, however, simultaneous sharing is not so easily accomplished. If two people ride a horse, someone has to ride in front. They can take turns riding in front, but they can't both ride in front at the same time. Children understand this very well. They recognize that certain procedures must be followed in certain ways.

For example, ask your students to discuss the number of ways they "take turns" in the classroom during the ordinary day. They take turns washing the blackboard, going to the bathroom, going to the cloakroom, and passing out the papers. On the playground, they take turns at bat, they take turns lining up for basketball, and they take turns at the high bar.

Ask your students what they think the connection is between "taking turns" and "being fair." The resulting discussion should throw light on the fact that sometimes being fair involves the way children are to be treated simultaneously, while at other times it involves the way they are to be treated sequentially. For example, if it is one child's birthday and there is going to be a party with cupcakes, there should be at least one cupcake for every child. This is being fair simultaneously. Later, if you want to play "Pin the Tail on the Donkey," children should sequentially take turns in order to be fair. (The prospect of everyone *simultaneously* being blindfolded and searching about with a pin boggles the mind.)

EXERCISE: When is it appropriate to take turns?

	Appropriate	Not Appropriate	?
1. Pam: "Louise, let's take turns riding your bike. I'll ride it Mondays, Wednesdays and Fridays, and you ride it Tuesdays, Thursdays and Saturdays."	☐	☐	☐
2. Gary: "Burt, let's take turns taking Louise to the movies. I'll take her the first and third Saturday of every month, and you take her the second and fourth Saturday."	☐	☐	☐
3. Jack: "Louise, let's take turns doing the dishes. You wash and I'll dry."	☐	☐	☐
4. Chris: "Okay, Louise, let's take turns with the TV. You choose a half-hour program, then I'll choose one."	☐	☐	☐
5. Melissa: "Louise, what do you say we take turns doing our homework? Tonight I'll do yours and mine, and tomorrow you can do mine and yours."	☐	☐	☐
6. Hank: "Louise, I hate to see you struggle to school each day, carrying those heavy books! Let me carry yours and mine today, and you can carry yours and mine tomorrow."	☐	☐	☐

The students performing this exercise are applying the criterion of *turn-taking* (i.e., *fair play* or *justice*) to half-a-dozen specific situations requiring sensitivity to context. Classroom discussion should be able to distinguish between those situations in which the procedure of turn-taking is appropriate and those in which it is dubious. When exercises like these are utilized in a community of inquiry setting, the stage is set for critical thinking in the classroom. It is not the only way to accomplish this, needless, to say. But it is one way.

It should be evident now why law and medicine were cited earlier as likely places to look for exemplary instances of critical thinking. Medicine and law both involve the flexible application of principles to practice, extreme sensitivity to the uniqueness of particular cases, refusal to allow either principles or facts to become Procrustean beds to which the other is to be fitted, and a commitment to tentative, hypothetical, self-correcting procedures as befits a species of inquiry. Both judges and doctors recognize the importance of being judicious--of making good judgments in the carrying out of their practice. Law and medicine *at their best* illustrate what critical thinking can be and ought to be. It remains for educators to design appropriate course in critical thinking and to help teachers and professors recognize the critical thinking elements in the present practice that need to be strengthened.

What, then, is the relevance of critical thinking to the enhancement of elementary school, secondary school and college education? Why are so many educators convinced that critical thinking is the key to educational reform? Part of the answer lies in the gradual shift that is occurring in the focus of education--the shift from *learning* to *thinking*. We want students to think for themselves, and not merely to learn what other people have thought. But another part of the answer lies in the fact that we want students who can do more than merely think: it is equally important that they exercise good judgment. It is good judgment that characterized the sound interpretation of a written text, the well-balance, coherent composition, the lucid comprehension of what one listens to, and the persuasive argument. It is good judgment that enables one to weigh and grasp what a statement or passage states, assumes, implies or suggests. And this good judgment cannot be operative unless it rests upon proficient reasoning skills that can assure competency in inference, as well as upon proficient inquiry, concept-formation and translation skills. If critical thinking can produce an improvement in education, it will be because it increases the quantity and quality of meaning that students derive from what they read and perceive and that they express in what they write and say.

The infusion of critical thinking into the curriculum carries with it the promise of the academic empowerment of the student. Once this is recognized, it will be necessary to come to grips with the question of the best way to bring about such infusion. In the meantime, it will be well to

keep in mind that students who are not taught to use criteria in a way that is both sensitive to context and self-corrective are *not* being taught to think critically.

Lastly, a word about the employment of criteria in critical thinking that facilitates good judgment. Critical thinking, as we know, is skillful thinking, and skills are proficient performances that satisfy relevant criteria. When we think critically, we are required to orchestrate a vast variety of cognitive skills, grouped in families such as reasoning skills, concept-formation skills, inquiry skills and translation skills. Without these skills, we would be unable to draw meaning from a written text or from a conversation, nor could we impart meaning to a conversation or to what we write. But just as, in an orchestra, there are such families as the woodwinds, the brasses and the strings, so there are these different families of cognitive skills. And just as, within each orchestral family, there are individual instruments--oboes and violas and French horns, each with its own standards of proficient performance, so there are individual cognitive skills, like deductive inference or classification, that represent particular kinds of proficient performances in accordance with relevant criteria. We are all familiar with the fact that an otherwise splendid musical performance can be ruined if so much as a single instrumentalist performs below acceptable standards. Likewise, the mobilization and perfection of the cognitive skills that go to make up critical thinking cannot neglect any of these skills without jeopardizing the process as a whole. This is why we cannot be content to give students practice in a handful of cognitive skills while neglecting all the others that are needed for the competency in inquiry, in language and in thought that is the hallmark of proficient critical thinkers. Instead of selecting and polishing a few skills that we think will do the trick, we must begin with the raw subject matter of communication and inquiry--with reading, listening, speaking, writing and reasoning--and we must cultivate whatever skills the mastery of such processes entails. It is only when we do this that we realize that only logic, epistemology and other philosophical disciplines can provide both the skills and the criteria that are presently lacking in the curriculum.

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